Authors

Lotte Janssens[a,b] PhD, PT (Lotte.Janssens@kuleuven.be)

Astrid Vermeersch[c] MD (Astrid.Vermeersch@gmail.com)

Nina Goossens[a] PT (Nina.Goossens@kuleuven.be)

Tinne Thys[c] PT (Tinne.Thys@uzleuven.be)

Nele Beeckmans[c,d] MD (Nele_Beeckmans@hotmail.com)

Roeland Lysens[c] PhD, MD (Roeland.Lysens@uzleuven.be)

Peter Van Wambeke[c] MD (Peter.VanWambeke@uzleuven.be)

Simon Brumagne[a,c] PhD, PT (Simon.Brumagne@kuleuven.be)

[a]KU Leuven – University of Leuven, Department of Rehabilitation Sciences, Tervuursevest 101 box 1501, 3000 Leuven, Belgium

[b]Hasselt University, Biomedical Research Institute, Agoralaan A, 3590 Diepenbeek, Belgium

[c]University Hospitals Leuven, Department of Physical Medicine and Rehabilitation, Herestraat 49, 3000 Leuven, Belgium

[d]University Hospitals Saint-Luc, Department of Physical Medicine and Rehabilitation, Hippokrateslaan 10, 1200 Sint-Lambrecht-Woluwe, Belgium

Response to letter to the Editor

At first, we would like to thank Mohan et al. for their comment on our systematic review on the association between the presence of respiratory disorders and low back pain (LBP) (Beeckmans et al., 2016). We are pleased to receive the opportunity to respond to this letter.

In their letter, Mohan et al. refer to dyspnea as a clinical symptom rather than a respiratory disorder. We agree but still support to take dyspnea separately into account in the history taking of individuals with LBP, apart from respiratory disorders that might cause dyspnea (e.g., asthma), because dyspnea can also be present without a respiratory disorder (e.g., resulting from dysfunctional breathing). The study of Clark et al., 2014 (not only studying elderly as Mohan et al. stated) supports this as it reveals a correlation between (back) pain and dyspnea, free from any respiratory disorders. Taken together, we took the broadest spectrum of respiratory disorders and symptoms into account to observe the relation with LBP. However, without doubt more research is essential to observe this correlation into more detail (e.g., causality), as also suggested by Mohan et al. While doing so, we will take into account the valuable suggestion to distinguish more clearly between wordings of respiratory disorders versus symptoms.

Further, Mohan et al. propose that correction of an altered breathing pattern is of great value in the rehabilitation of LBP. They refer to the fact that altered breathing patterns in musculoskeletal disorders, such as LBP, are because of pain. We partially agree, but it is of considerable importance to notify altered breathing patterns are not only a consequence but also a cause of (low back) pain. Prospective studies are mainly lacking, but the fact that altered breathing patterns in patients with LBP are not related to pain severity is supportive (Roussel et al., 2009). Moreover, the idea that altered breathing is rather a cause than a consequence of LBP is supported by our proof of principle study in individuals with LBP, observing the effect of inspiratory muscle training with a focus on abdominal/diaphragmatic ("bucket handle") rather than thoracic ("pump handle") breathing (Janssens et al., 2015). It supports that suboptimal breathing is a contributing but reversible factor in the etiology

of LBP. Therefore, we agree with Mohan et al. that optimizing the breathing pattern is an important target in the treatment of LBP. Inspiratory muscle training by a flow resistive breathing device can be a valuable additive since it improves postural control and reduces LBP severity (Janssens et al., 2015).

In conclusion, it becomes clear that more in depth research on the particular relation between respiratory disorders/symptoms and LBP is essential to ultimately help to tackle the worldwide burden of LBP. Hyperventilation and psychosocial factors, in terms of anxiety and kinesiophobia, are for example potential contributors to this relationship, and are currently studied by our research group. We are happy that other researcher groups such as the group of Mohan et al. provide valuable new insights to this research field.

References

Beeckmans N, Vermeersch A, Lysens R, et al. The presence of respiratory disorders in individuals with low back pain: A systematic review. Man Ther. 2016;26:77-86.

Clark N, Fan VS, Slatore CG, et al. Dyspnea and pain frequently co-occur among Medicare managed care recipients. Ann Am Thorac Soc. 2014;11(6):890-7.

Janssens L, McConnell A, Pijnenburg M, et al. Inspiratory muscle training affects proprioceptive use and low back pain. Med Sci Sports Exerc. 2015;47(1):12-9.

Roussel N, Nijs J, Truijen S, Vervecken L, Mottram S, Stassijns G. Altered breathing patterns during lumbopelvic motor control tests in chronic low back pain: a case-control study. Eur Spine J. 2009;18(7):1066-73.